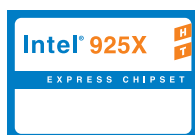




The Intel® 925X Express chipset, with PCI Express graphics, and Intel's advanced performance architecture, supporting the Intel® Pentium® 4 Processor with Hyper-Threading Technology.¹



Intel 925X Express chipset-based platforms are optimized to deliver exceptional system performance, providing advanced technology and new levels of efficiency to help meet the demands of advanced computer users.

The Intel® 925X Express chipset.

Workstation platforms based on the Intel® 925X Express chipset and Intel® Pentium® 4 Processor with Hyper-Threading Technology deliver exceptional computing power in a single processor platform. The Intel 925X Express chipset was designed to support Intel's Hyper-Threading (HT) Technology, adding intelligence to help manage and prioritize multiple threads received from the processor. HT Technology-enabled platforms help maximize efficiency by improving system performance and responsiveness.

Additionally, for great workstation application flexibility, the Intel 925X Express chipset is specifically designed to support Intel® Extended Memory 64 Technology² (Intel® EM64T) enabling 64-bit memory addressability. Select versions of the Pentium 4 processor support Intel® EM64T as an enhancement to Intel's IA-32 architecture on workstation platforms. This enhancement enables the processor to execute operating systems and applications written to take advantage of Intel® EM64T. Further details on the 64-bit extension architecture and programming model can be found in the Intel® Extended Memory 64 Technology Software Developer Guide at <http://developer.intel.com/technology/64bit/extensions/>.

These features enable the high-performance Intel 925X-based platform to meet a broad range of demanding computing needs such as graphic design, mechanical modeling, digital content creation, and many other high computing power workstation-class applications. Each component has been thoroughly tested for reliability and performance to help meet the demanding needs of applications today and in the future.

The Intel 925X Express chipset delivers optimized system performance through its high-bandwidth interfaces, such as dual-channel DDR2 main memory sub-system, up to 800-MHz system bus, PCI Express* x16 Graphics, four PCI Express x1 ports, and Hi-Speed USB 2.0 connectivity. PCI Express architecture enables increased bidirectional bandwidth to the graphics and I/O interfaces. With up to 500 MB/s concurrent data transfer rate, it provides more than two times the I/O bandwidth of traditional PCI architecture. And with 4 GB/s per direction PCI Express Graphics capability, it provides up to two times the graphics bandwidth of previous high-performance discrete graphics solutions.

The Intel 925X Express chipset's high performance architecture delivers additional system-level performance via enhanced memory pipelining that enables a higher utilization of each memory channel, improving data access. The result is a performance enhanced platform optimizing data transfers between the processor and system memory for platforms configured with 800-MHz system bus and DDR2 memory. To support the increased graphics requirements and I/O bandwidth, the Intel 925X Express chipset incorporates a new Memory Controller Hub (MCH) architecture. This new design includes wider internal data buses that support dual-channel DDR2 memory technology at 533 MHz or 8.53 GB/s of peak memory bandwidth, for improved platform performance. The new architecture also supports both asynchronous and true isochronous data traffic, with dedicated internal pipelines and specialized arbitration. In addition, the Intel 925X MCH has improved electricals with optimized ball-out for better latency with an additional bypass enabled. These enhancements enable the Intel 925X Express chipset to take full advantage of the performance of these new high-speed interfaces.

A high speed serial point-to-point bus architecture, known as Direct Media Interface, links the MCH to the sixth generation Intel® I/O Controller Hub (ICH6). This new bus delivers 2 GB/s concurrent bandwidth, compared to 266 MB/s for the previous Intel® hub architecture. Intel 925X Express chipset-based platforms also enable system design flexibility, with support for dual-channel DDR2 memory, and additional platform capabilities via flexible ICH6 options.

The ICH6 component includes several enhancements and new capabilities, and enables system configuration options for various business collaboration tasks. It integrates Intel® High Definition Audio (Intel® HD Audio) technology, featuring eight independent DMA audio engines that support multiple simultaneous and separate audio input and output streams. This enables high-quality integrated audio that rivals the performance of high-end discrete solutions. Intel HD Audio also incorporates support for many consumer entertainment industry formats, such as Dolby® Digital 5.1/6.1/7.1 (allowing for THX® certification), DTS® ES Discrete 6.1 and has the bandwidth to support consumer implementation of industry formats, such as SACD. Four independent

Serial ATA* (SATA) controllers allow connections for SATA hard drives and new SATA optical devices while the Advanced Host Controller Interface (AHCI) provides enhanced storage performance, with faster boot times and high file transfer rates of up to 150 MB/s. The Intel® ICH6R component elevates SATA storage performance to the next level with Intel® Matrix Storage Technology. Enhanced RAID support allows data to be stored on one array that is designed for high reliability, while performing memory-intensive applications like digital rendering on a second array designed for maximum performance.

The features of the Intel 925X Express chipset deliver a compelling solution for both consumer and corporate market segments:

- 800-MHz FSB enables support for today's highest-performing Intel Pentium 4 processors.
- Optimized for the Intel Pentium 4 Processor supporting HT Technology to enable improved system performance and responsiveness.
- Enhanced performance architecture, with 800-MHz system bus processors and DDR2 memory, optimizes data transfers between the processor and system memory.
- Intel® Extended Memory 64 Technology (Intel® EM64T) provides workstation application flexibility for future 64-bit code and access to large amounts of memory while running existing 32-bit applications.
- Flexible memory support, with dual-channel DDR2 533/DDR2 400 memory, providing up to 8.53 GB/s memory bandwidth, in configurations up to a maximum of 4 GB of Random Access Memory (RAM).
- PCI Express delivers up to 4 GB/s per direction for graphics bandwidth and up to 500 MB/s concurrent data transfers for I/O to support the most demanding applications.
- Intel Matrix Storage Technology, with integrated Raid 0 and Raid 1 capabilities using the latest SATA interface, for accelerated disk I/O performance.
- Intel HD Audio technology's eight independent DMA audio engines can enable multiple separate, simultaneous audio streams.



FEATURES	BENEFITS
800-MHz System Bus	Supports Intel's latest processor frequencies to deliver outstanding system bandwidth and performance.
Hyper-Threading Technology Support	Increases system responsiveness and performance.
LGA775 Processor Package	Supports the high-performance Intel desktop processors on LGA775 processor package.
Direct Media Interface (DMI)	Dedicated data paths deliver up to 2.0 GB/s concurrent bandwidth compared to 266 MB/s bandwidth for previous generation Intel® hub architecture, to support more I/O intensive applications.
Dual-channel DDR2	Full spectrum of DDR2 support to enable high-performance systems.
Intel® Extended Memory 64 Technology (Intel® EM64T)	Enhances next generation IA-32 workstation platforms with 64-bit addressability and related instructions, allowing flexibility to execute operating systems and applications written to take advantage of the Intel® EM64T.
PCI Express*	Designed for bandwidth-intensive applications. PCI Express x16 Graphics delivers up to 4 GB/s per direction, more than two times the bandwidth of previous high-end discrete graphics solutions. PCI Express x1 I/O offers 500 MB/s concurrently over two times the bandwidth of traditional PCI architecture.
Integrated Serial ATA Controller	Facilitates high-speed storage and data transfers at up to 150 MB/s for each of four ports. Allows easier hard drive upgrades and expansion for new SATA optical drives with 4 SATA/150 ports.
Intel® Matrix Storage Technology	Boosts storage performance with RAID 0 while protecting your digital memories with RAID 1 on the same disks. Advanced Host Controller Interface further boosts performance with Native Command Queuing, and provides native hot plug.
Feature: Ultra ATA/100	Takes advantage of the existing industry HDD and optical drive interfaces.
Integrated Hi-Speed USB 2.0	Eight ports offer up to 40X greater bandwidth over USB 1.1 for high-speed I/O peripherals, such as digital video cameras.
Intel® High Definition Audio	Support for new consumer electronics audio formats, such as Dolby* Digital, DTS* and multiple streams, and increased audio quality enable new PC uses.

COMPATABILITY

The Intel 925X Express chipset supports the following Intel Pentium 4 Processors with HT Technology:

Intel® Pentium 4 Processor with HT Technology 3.20F GHz
Intel® Pentium 4 Processor with HT Technology 3.40F GHz
Intel® Pentium 4 Processor with HT Technology 3.60F GHz

PRODUCT

PACKAGE

Intel® Pentium® 4 Processor

775 Land Grid Array (LGA)

Intel® 925X MCH

1210 Flip Chip Ball Grid Array (FCBGA)

Intel® ICH6/ICH6R

609 Micro Ball Grid Array (mBGA)

INTEL ACCESS

Developer's Site

<http://developer.intel.com/>

Motherboard Selector Guide

<http://www.intel.com/go/boards>

Other Intel Support:

<http://support.intel.com>

Intel Literature Center

(800) 548-4725 7 a.m. to 7 p.m. CST (U.S. and Canada)
International locations please contact your local sales office.

General Information Hotline

(800) 628-8686 or (916) 356-3104 5 a.m. to 5 p.m. PST

For more information, visit the Intel Web site

<http://www.intel.com/design/chipsets>

UNITED STATES AND CANADA	EUROPE	ASIA-PACIFIC	JAPAN	SOUTH AMERICA
Intel Corporation Robert Noyce Bldg. 2200 Mission College Blvd. P.O. Box 58119 Santa Clara, CA 95052-8119 USA	Intel Corporation (UK) Ltd. Pipers Way Swindon Wiltshire SN3 1RJ UK	Intel Semiconductor Ltd. 32/F Two Pacific Place 88 Queensway, Central Hong Kong	Intel Japan (Tsukuba HQ) 5-6 Tokodai Tsukuba-shi 300-2635 Ibaraki-ken Japan	Intel Semicondutores do Brasil Ltda Av. Dr. Chucuri Zaidan, 940-10° andar 04583-904 São Paulo, SP Brazil

¹ Look for systems with the Intel® Pentium® 4 Processor with HT Technology logo which your system vendor has verified utilize Hyper-Threading Technology. Hyper-Threading Technology requires a computer system with an Intel Pentium 4 processor supporting HT Technology and an HT Technology enabled chipset, BIOS and operating system. Performance will vary depending on the specific hardware and software you use. See www.intel.com/info/hyperthreading for more information including details on which processors support HT Technology.

² Intel® Extended Memory 64 Technology (Intel® EM64T) requires a computer system with a processor, chipset, BIOS, OS, device drivers and applications enabled for Intel EM64T. Processor will not operate (including 32-bit operation) without an Intel EM64T-enabled BIOS. Performance will vary depending on your hardware and software configurations. Intel EM64T-enabled OS, BIOS, device drivers and applications may not be available. Check with your vendor for more information.

The Intel® Pentium® 4 processor and Intel® 925X Express chipset may contain design defects or errors known as errata which may cause the product to deviate from published specifications. Current characterized errata for commercially available products are available on request. Intel Corporation assumes no responsibility for the use of any circuitry other than circuitry embodied in an Intel® product. Information contained herein supersedes previously published specifications on these devices from Intel.

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